

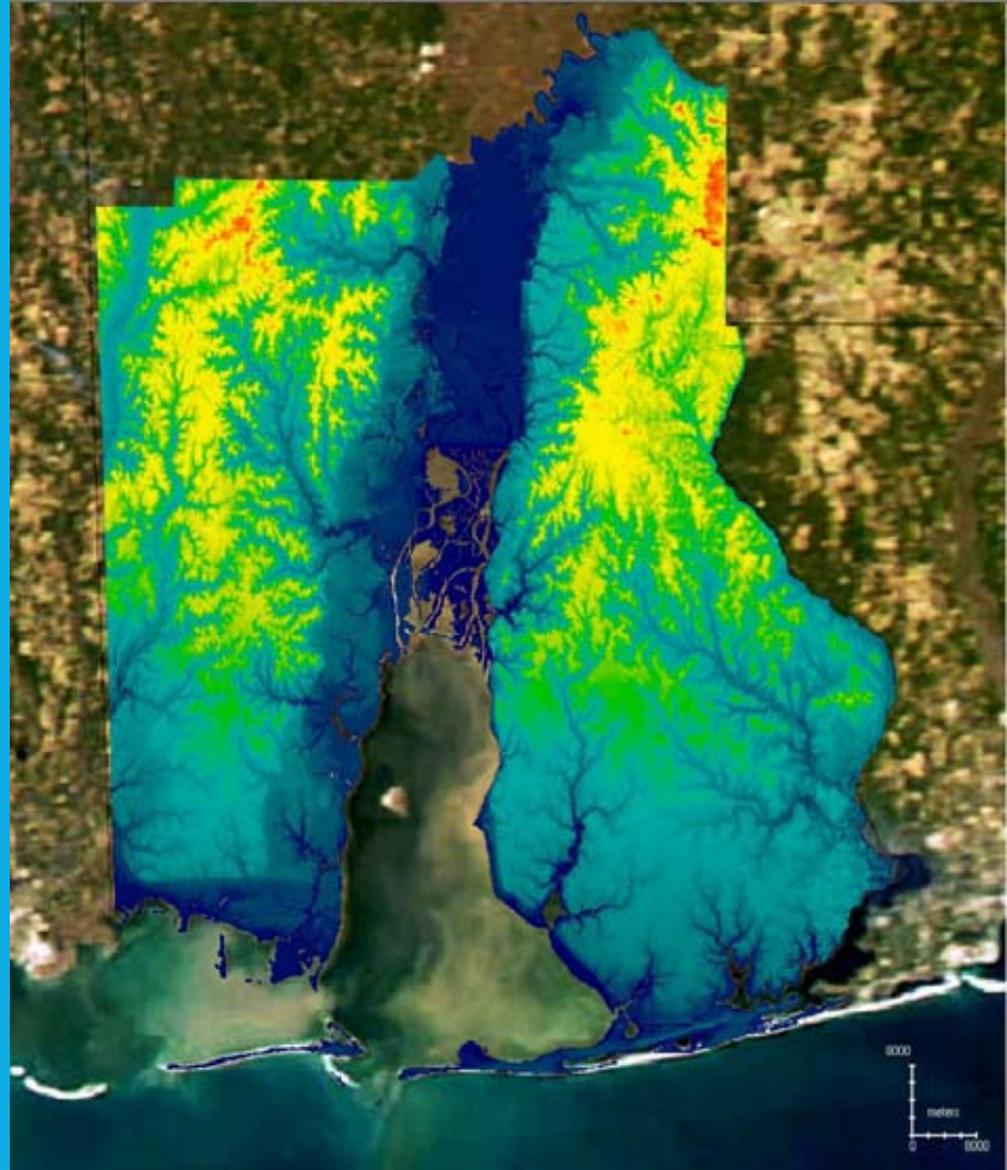
Aiding Mobile Bay, AL Conservation and Restoration with Landsat Data 1974-present

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The Area

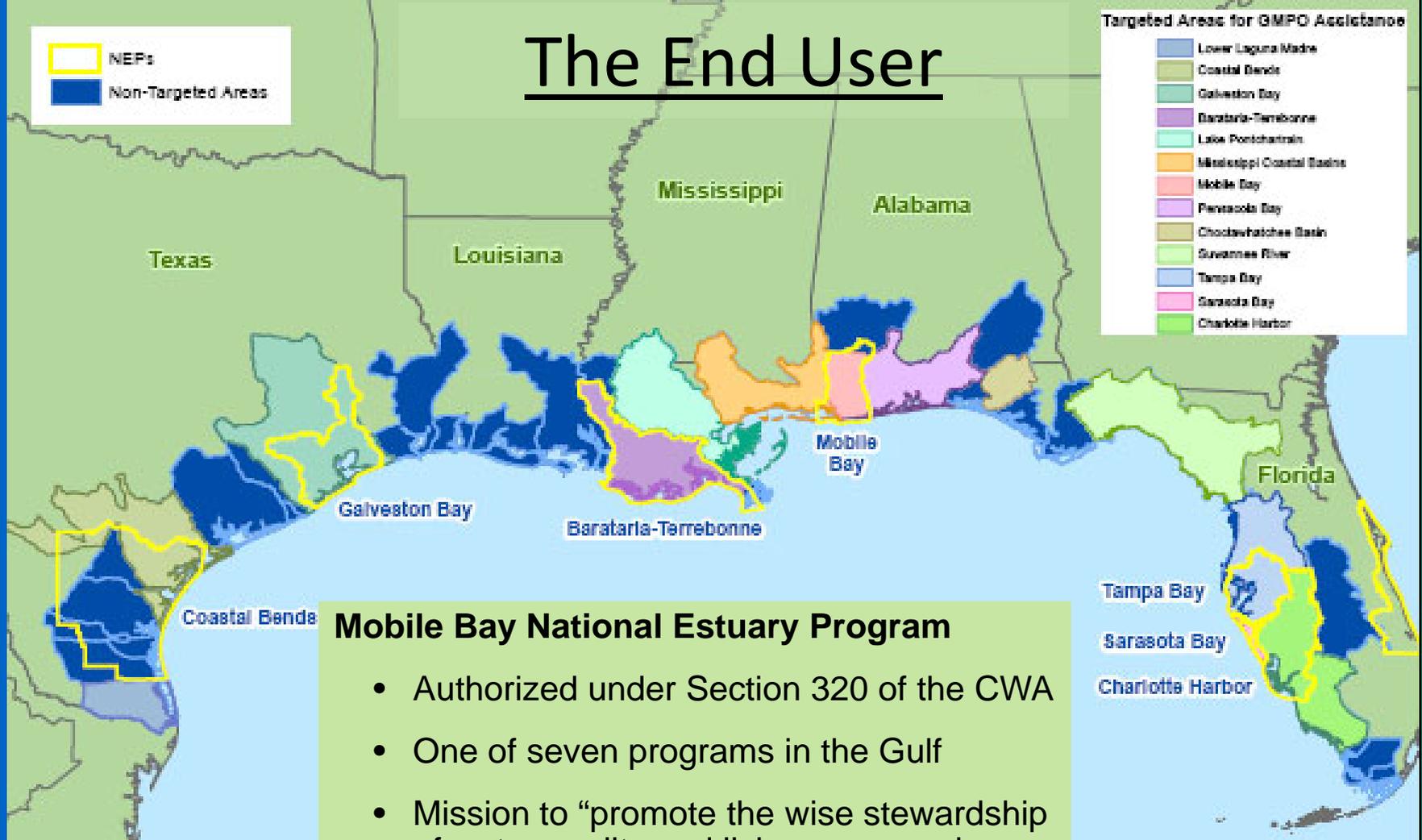
Mobile and Baldwin Counties, AL

- **Second largest** intact **river delta** in the US
- **Fourth largest** watershed in terms of **freshwater inflow** in continental USA
- **Sixth largest** watershed in terms of **areal extent** in the nation
- **Vital** commercial and recreationally important **fish nursery habitat**
- **Increasing development impacts** due to population and economic growth

Estuary of “national significance”



The End User

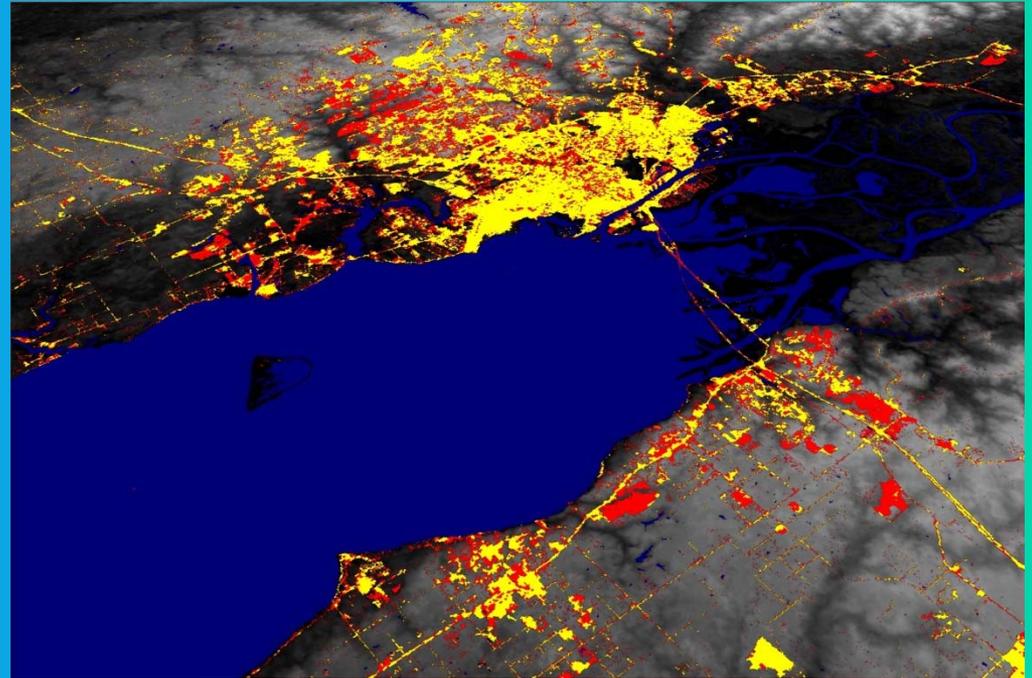


Mobile Bay National Estuary Program

- Authorized under Section 320 of the CWA
- One of seven programs in the Gulf
- Mission to “promote the wise stewardship of water quality and living resource base of the Mobile Bay watershed”
- Guided by a Management Conference of diverse local, state and federal stakeholders

Project Goal

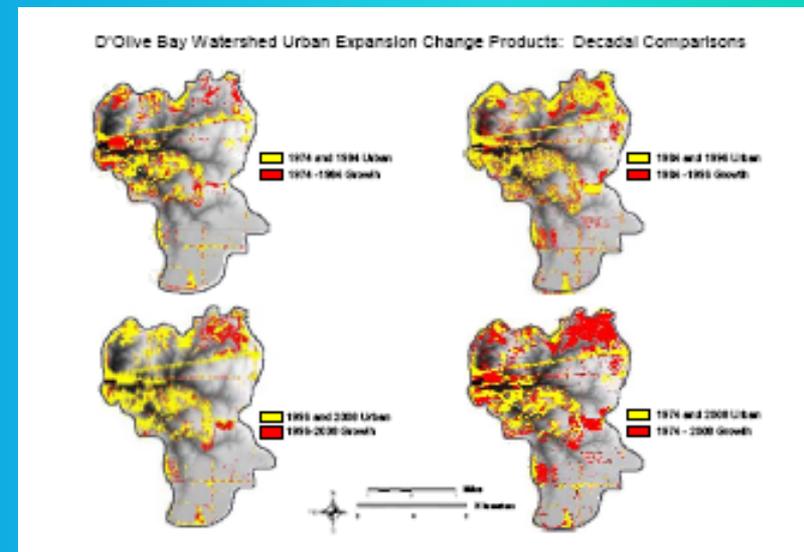
To use NASA data and models to enhance the coastal decision-making capabilities of the Mobile Bay National Estuary Program (MBNEP) and the Alabama Department of Conservation and Natural Resources (ADCNR).



.picture is worth a thousand words...

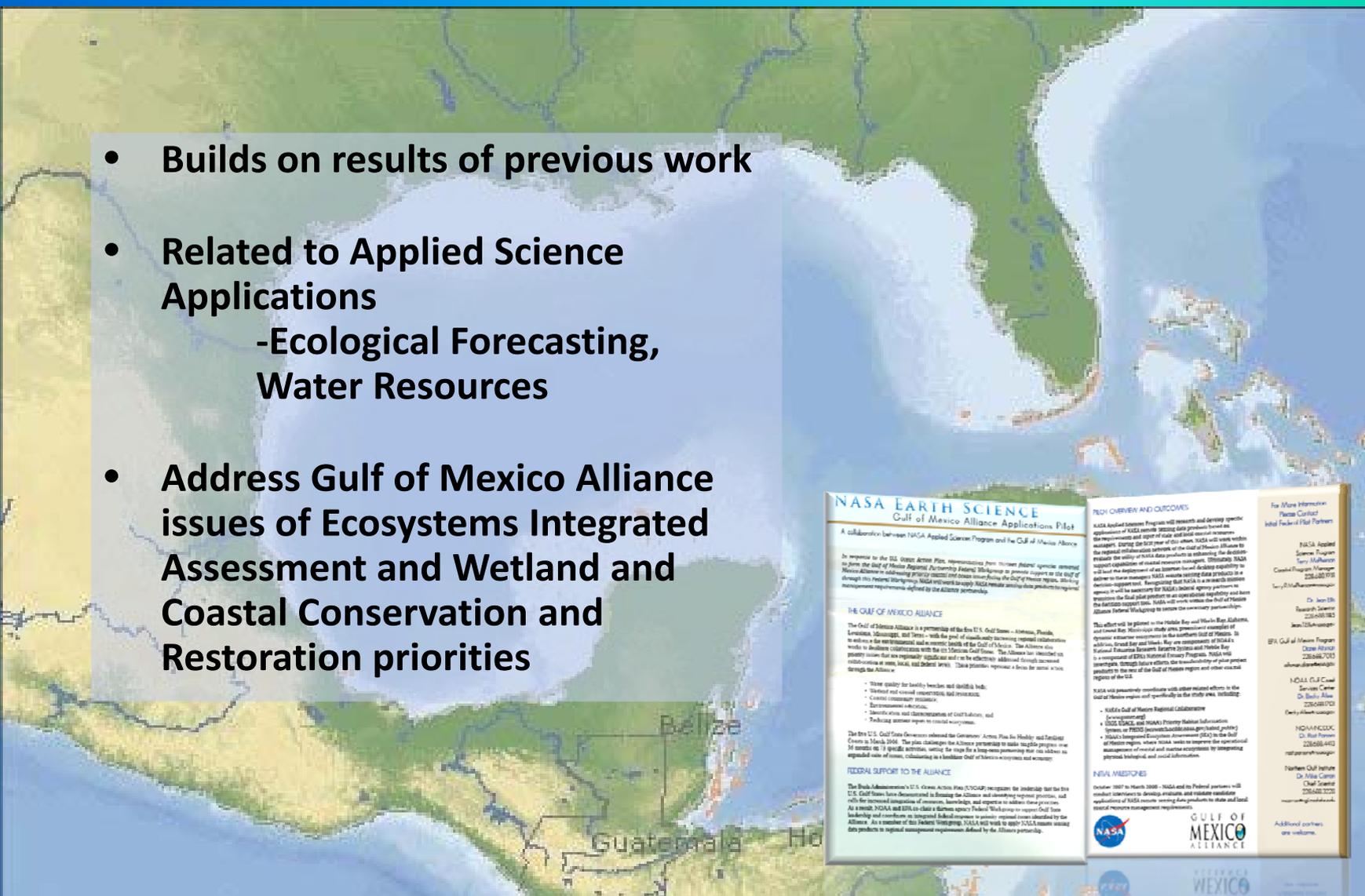
How?

- Develop **LULC mapping products to accurately characterize the changing urban landscape** that incorporate data from Landsat, NLCD, C-CAP, and NWI
- Validate products with available reference data (e.g. in situ data)
- Determine **permanency of change**
- **Identify watersheds** under most habitat change pressure
- Produce **GIS layers and images** useable for watershed and habitat conservation planning



Project Context in Relation to Gulf Initiatives

- Builds on results of previous work
- Related to Applied Science Applications
 - Ecological Forecasting, Water Resources
- Address Gulf of Mexico Alliance issues of Ecosystems Integrated Assessment and Wetland and Coastal Conservation and Restoration priorities



NASA EARTH SCIENCE
Gulf of Mexico Alliance Applications Pilot

A collaboration between NASA Applied Science Program and the Gulf of Mexico Alliance.

In response to the U.S. Ocean Action Plan, representing ten Northern Atlantic agencies, committed to join the Gulf of Mexico Regional Partnership (GMRP) to provide support to the Gulf of Mexico Alliance in addressing priority coastal and ocean issues facing the Gulf of Mexico region. Working through this Federal Working Group, NASA will work to apply NASA remote sensing data products to regional management requirements defined by the Alliance partnership.

THE GULF OF MEXICO ALLIANCE

The Gulf of Mexico Alliance is a partnership of the five U.S. Gulf States - Alabama, Florida, Louisiana, Mississippi, and Texas - with the goal of sustainably balancing regional stakeholder needs to address challenges with the Gulf of Mexico. The Alliance also partners closely with the six Mexican Gulf States. The Alliance has identified six priority issues that are regionally significant and can be effectively addressed through increased collaboration at state, local, and federal levels. These priorities represent a focus for some of the work through the Alliance.

- Water quality for healthy beaches and shellfish beds.
- Wetland and coastal conservation and protection.
- Coastal ecosystem resiliency.
- Environmental education.
- Research and characterization of distribution and
- Predicting adverse impacts to coastal ecosystems.

The five U.S. Gulf States Governors released the Governor's Action Plan for Healthy and Productive Coasts in March 2014. The plan challenges the Alliance partnership to make tangible progress on 16 critical and specific activities, acting for rapid and long-term partnering that includes an expanded view of roles, collaborating as a holistic Gulf of Mexico ecosystem and economy.

FEDERAL SUPPORT TO THE ALLIANCE

The Bush Administration's U.S. Coast Action Plan (USCAP) recognizes the leadership that the five U.S. Gulf States have demonstrated in leading the Alliance and identifying regional priorities, and will continue to support the Alliance's research, knowledge, and expertise to address these priorities. As a result, NASA and EPA are joining a Federal Working Group to support Gulf State leadership and coordinate an integrated federal response to regional management needs identified by the Alliance. As a member of this Federal Working Group, NASA will work to apply NASA remote sensing data products to regional management requirements defined by the Alliance partnership.

RESEARCH OVERVIEW AND OUTCOMES

NASA Applied Science Program will research and develop specific applications of NASA remote sensing data products toward the requirements and upper end of scale and local coastal resources management and upper end of scale. NASA will work within existing management systems of the Gulf of Mexico Alliance to enhance the utility of NASA data products in addressing the Alliance's management needs. NASA will provide technical expertise to support the development of an upper end of scale capability to a degree that is necessary for NASA to deliver agency products to the Alliance. Recognizing that NASA is a natural partner to support the Gulf of Mexico Alliance, NASA will work to ensure that the Alliance has the necessary capability and data to support the Alliance's management needs. NASA will work within the Gulf of Mexico Alliance to ensure the necessary capability and data to support the Alliance's management needs. NASA will work within the Gulf of Mexico Alliance to ensure the necessary capability and data to support the Alliance's management needs.

FOR MORE INFORMATION:
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Additional partners are welcome.

NASA **GULF OF MEXICO ALLIANCE**

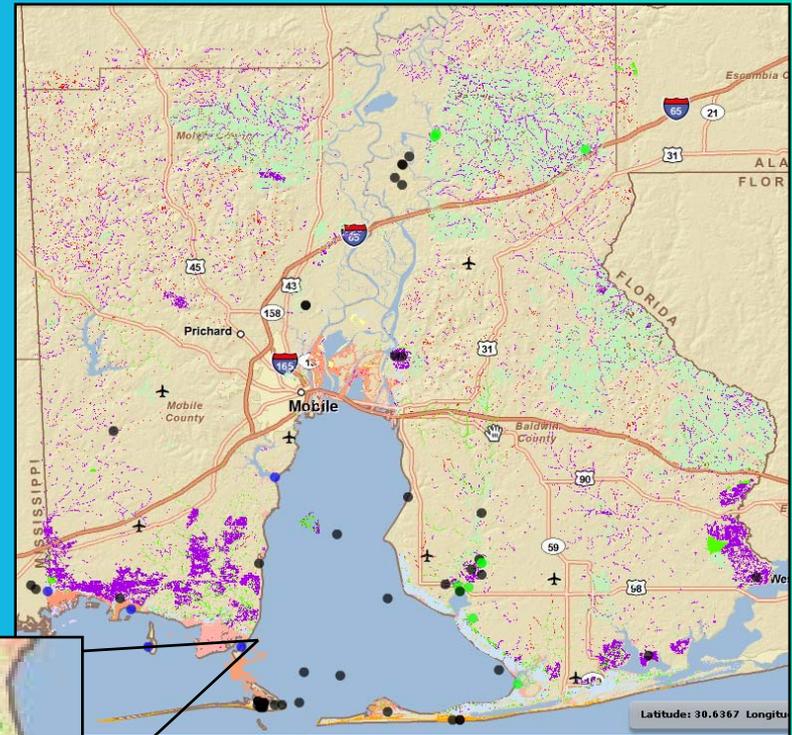
Study Objectives

Anticipated Results

<p>1. Comprehensive product validation and documentation</p>	<p>- Compilation maps and statistics for NCDDC website/Habitat Tool</p>
<p>2. Compile, reclassify, and rectify previous LULC products</p> <ul style="list-style-type: none">* 2001-2002 (C-CAP, NWI, NLCD, NASA)* Accuracy Assessment with 2005 C-CAP > 85% accuracy	<p>- Definitive Habitat Status and Trends Document</p>
<p>3. Regional and watershed analysis of urban and wetland landscapes</p> <ul style="list-style-type: none">* Understanding Impervious surfaces* Agricultural impacts	<ul style="list-style-type: none">- Impervious Surface Maps: ERU's for stormwater programs- Urbanization of watersheds- Pixel-by-Pixel Analysis- "Story" for local officials and public that gives visualization of conservation needs
<p>4. Assessment of permanence of LULC patches</p>	<p>- GIS data and images for MS AL Habitat Tool and aid in decision making</p>

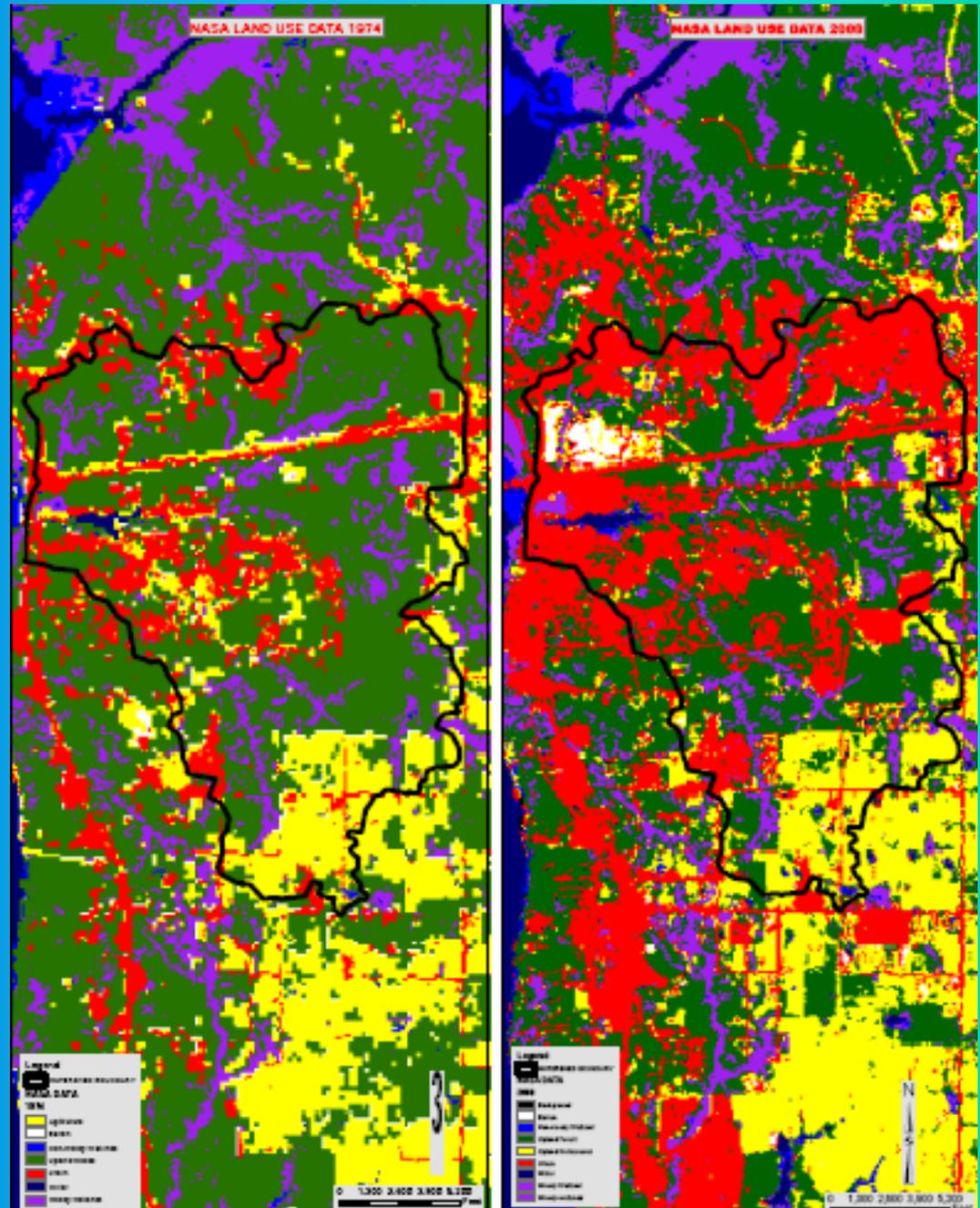
Uses

- Incorporation into NCDDC pilot project to improve data access
- MS AL Habitat Tool
 - Future priority habitat analysis
 - Continuation of Status and Trends



Uses

- Watershed Planning
 - Currently being used for planning effort for comprehensive planning in D'Olive watershed



Thank you.